REMARKS

Claims 1-14 are pending and under consideration. Further reconsideration is requested based on the following remarks.

Response to Arguments:

The Applicants appreciate the consideration given to their arguments. The Applicants, however, are disappointed that their arguments were not found to be persuasive. Further reconsideration is requested.

The final Office Action addresses the arguments in the section labeled 6, at pages 4 and 5, by saying in part:

> Athough, Grob et al. recognize the means of stopping as seen in col. 4, lines 56-64, such emergency could have been obviously taken for emergency-stopping state.

Claim 1, on the other hand, recites more than simply an emergency stop command. Claim 1, rather, recites a "receiving means place said robot in an emergency-stop state when receiving *even a single set of* communications data expressing an emergency stop command," (emphasis added) Claim 4, the other independent claim, recites similarly "*at least one of* the receiving means place said robot in an emergency-stop state when receiving communications data expressing an emergency stop command." Even if it is absolutely true that, in the event of an emergency, the robot of Grob would have been stopped, Grob still does not show a "receiving means place said robot in an emergency-stop state when receiving even a single set of communications data expressing an emergency stop command."

The method for handling a control unit voltage drop of Grob to which the final Office Action refers, at column 4, lines 56-64, in fact, would never be used to stop the robot in an emergency. The method for handling a control unit voltage drop of Grob, rather, is meant to protect the work piece and the robot from damage in the event of a voltage drop, by parking the robot in an orderly manner, as described in the Abstract. In particular, as described at column 4, lines 60-67, and continuing at column 5, lines 1-5:

> breaking off or stopping in a defined manner one or both of running movement along a predetermined path and ongoing application operations including:
> stopping robot movement close to the path;
> subsequent to stopping robot movement terminating working processes of the control;
> supplying DC voltage using a battery/accumulator; and
> storing exclusively the contents of a working memory relating to the real time operating system and robot control programs at a termination point as an image

of the working memory in a mass memory or mass memories.

A voltage drop is not an emergency. The last thing to worry about in an emergency is how to handle a voltage drop. The method of Grob lets the robot stop slowly, not abruptly, as would be appropriate in an emergency. Even if Grob experienced an emergency, Grob would still be worrying about stopping and parking the robot in an orderly manner to preserve the work piece. Thus, even if Grob taught an emergency stop, which it does not, there is still no showing in Grob of a "receiving means place said robot in an emergency-stop state when receiving even a single set of communications data expressing an emergency stop command."

The final Office Action goes on to say, at the bottom of page 4:

> As to the reference not "describe receipt of an emergency stop command" (Nakai et al. had been introduced to demonstrate that the use of emergency stop command is prior art [0035]).

Here again, even if it is true that the use of emergency stop command is prior art, Nakai still does not show a "receiving means which places a robot in an emergency-stop state when receiving even a single set of communications data expressing an emergency stop command."

Paragraph [0035] of Nakai, in fact, does not mention receiving an emergency stop command at all, let alone show a "receiving means which places a robot in an emergency-stop state when receiving even a single set of communications data expressing an emergency stop command." Paragraph [0035], rather, to which the final Office Action refers, describes:

> The information presenting terminal 11 records a log of such commands and telemetry data. Also, the information presenting terminal 11 can only transmit from itself an emergency stop command for the robot arm 1.

Since Nakai does not mention receiving an emergency stop command, Nakai cannot show a "receiving means place said robot in an emergency-stop state when receiving even a single set of communications data expressing an emergency stop command," either. Therefore, even if Grob and Nakai were combined as proposed in the final Office Action, the claimed invention would not result.

Finally, with respect to existence of an emergency stop command at the time of the invention, if identification of each claimed element in the prior art were sufficient to negate patentability, the final Office Action could use the claimed invention itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention. To prevent the use of hindsight based on the teachings of the patent application, the final Office action must show a motivation to combine the references in the manner suggested.

A rejection under 35 U.S.C. § 103(a), as explained in the M.P.E.P. §706.02(j)(D), rather, requires more than an assertion that an element was known at the time the invention was made. In particular, as provided for in M.P.E.P. §706.02(j)(D):

> 35 U.S.C. 103 authorizes a rejection where, to meet the claim, it is necessary to modify a single reference or to combine it with one or more other references. After indicating that the rejection is under 35 U.S.C. 103, the examiner should set forth in the Office action: . . .
> (D) an explanation why one of ordinary skill in the art at the time the invention was made would have been motivated to make the proposed modification. M.P.E.P. § 706.02(j)(D).
>
> "It is insufficient that the prior art [discloses] the components . . . either separately or used in other combinations; there must be some teaching, suggestion, or incentive to make the combination made by the inventor." Northern Telecom, Inc. v. Datapoint Corp., 908 F.2d 931, 15 USPQ2d 1321 (Fed. Cir. 1990), *cert. denied*, 498 U.S. 920 (1990).
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> "When a rejection depends on a combination of prior art references, there must be some teaching, suggestion, or motivation to combine the references." *In re Rouffet*, 47 USPQ2d 1453, 1456 (Fed. Cir. 1998); see also M.P.E.P. § 2143.01. Virtually all inventions are combinations of old elements. *See In re Rouffet*, 47 USPQ2d at 1457.

Many things may have been well known *individually* at the time of the invention. A rejection under 35 U.S.C. § 103(a) requires a showing that the *combination* of elements was obvious, i.e.. a showing that persons of ordinary skill in the art at the time the invention was made would have seen fit to form the claimed *combination*. Here, the final Office Action has pointed to no teaching, either in the cited references or the general state of the art, as to why one of ordinary skill in the art at the time the invention was made would have been motivated to modify Grob to form a "receiving means place said robot in an emergency-stop state when receiving even a single set of communications data expressing an emergency stop command," beyond an assertion that an emergency stop command itself is well known in the art. An emergency stop command is but one element of the claimed *combination* of elements. Further reconsideration is thus requested.

Claim Rejections - 35 U.S.C. § 103:

Claims 1-14 were rejected under 35 U.S.C. § 103 as being unpatentable over Grob et al., US 6,356,806 in view of Nagai et al., US 2003/0083784. The rejection is traversed. Reconsideration is earnestly solicited.

Claim 1 recites, in pertinent part:

> Said receiving means place said robot in an emergency-stop state when receiving even a single set of communications data expressing an emergency stop command.

Grob neither teaches, discloses, nor suggests "receiving means place said robot in an emergency-stop state when receiving even a single set of communications data expressing an emergency stop command," as recited in claim 1. The final Office Action acknowledges this deficiency of Grob implicitly at page 4, and attempts to compensate for this deficiency by combining Grob with Nakai, saying "Nakai et al. in the other hand teaches strongly an emergency stop command in a robotical environment (see section [0035])."

Nakai, however, is not describing receipt of an emergency stop command at paragraph [0035], contrary to the assertion in the final Office Action. Nakai, rather, is discussing the limits on the kinds of commands that information presenting terminal 11, not a robot at all, can *transmit* from itself. Indeed, Nakai describes information presenting terminal 11 at paragraph [0034] as:

> An interface computer acting between the earth system 4 and the operating and image display terminals 12, 13 through an RS232C line, and its screen provides a value display of commands and various telemetry data such as position or posture of the tip (the hand portion 1K) of the robot arm 1."

Furthermore, as described in Nakai at paragraph [0035]:

> The information presenting terminal 11 records a log of such commands and telemetry data. Also, the information presenting terminal 11 can only transmit from itself an emergency stop command for the robot arm 1.

Thus, information presenting terminal 11 can only *transmit* from itself an emergency stop command for the robot arm 1. This is to be contrasted with claim 1, in which a "receiving means place said robot in an emergency-stop state when receiving even a single set of communications data expressing an emergency stop command." Thus, even if Grob and Nakai were combined as proposed in the final Office Action, the claimed invention would not result.

Grob, furthermore, doesn't relate to *stopping* a robot at all, let alone a receiving means which places a robot in an emergency-stop state when receiving even a single set of communications data expressing an emergency stop command, as recited in claim 1. Grob, rather, relates to *restarting* a robot following the stoppage thereof due to a voltage drop or a breakdown, as described at column 1, lines 16-19. Thus, even if Grob and Nakai were combined as proposed in the final Office Action, the claimed invention would not result.

Furthermore, the final Office Action provides no motivation or suggestion to combine the teachings of Grob and Nagai as required by 35 U.S.C. § 103(a) and the M.P.E.P. § 706.02(j)(D), beyond an assertion that "this modification would have enhanced Grob's et al. robot by introducing precisely an emergency stop command, thereby improving the efficiency and reliability of robot controller."

Grob, however, whose purpose is to ameliorate the ill effects of stopping a robot on costs and work-piece quality, isn't allowing for emergency stop commands at all. Grob, rather, is concerned with recovery from a stoppage due to a voltage drop or a breakdown, not an emergency stop as recited in claim 1.

If a stoppage due to a voltage drop or a breakdown occurs in a mechanism controlled by a program, such as a robot, the mechanism is terminated in a *controlled* manner by a buffer storage of electrical energy such as an accumulator battery, as described at column 1, lines 19 and 24. Thus the robot runs for a little while off of the battery until it completes whatever motion it was performing, or at least gets to a position where it can be parked. In the event of an *emergency* on the other hand, the robot would need to stop *immediately*, regardless of what it was doing. An emergency stop command, therefore, would result in an abrupt stop, not a controlled stop. There would be no time, in the event of an emergency stop, to let the robot continue to run for a little while until it completes whatever motion it was performing. Grob is thus completely inappropriate for an emergency stop.

Grob, furthermore, considers even *controlled* stops to be a problem, as described at column 1, 33-38, and tries to ameliorate their effects by stopping the robot in a controlled manner, as described at column 2, lines 2 and 3. In particular, Grob tells us that recovering from a controlled shutdown:

> Requires an experienced operator, it is fault-prone and in certain circumstances takes up a considerable amount of time. If a new workpiece is being machined, then the workpiece which has not been completely machined constitutes waste and is therefore also a cost factor.

Thus, since Grob warns us that recovering from a *controlled* stop takes up a considerable amount of *time*, and constitutes *waste*, and raises *costs*, it is submitted that persons of ordinary skill in the art who read Grob at the time the invention was made would not have tried to make the problem even *worse* by modifying Grob as proposed in the final Office Action by introducing an *emergency* stop as well.

Furthermore, M.P.E.P. § 2143.01 prohibits any proposed modification of a reference that might render the reference unsatisfactory for its intended purpose. Grob describes his intended purpose at column 1, lines 59-64 to be:

> A rotor movement taking place and optionally application operations are broken off or stopped in a clearly defined manner, that subsequently working processes of the control are terminated and that exclusively the contents of the working memory at the stoppage time concerning the real time operating system and robot control programs are stored in a mass memory.

If the environment of Grob included an emergency stop, as proposed in the final Office Action, there would be no time to break off or stop a robot movement taking place in a clearly defined manner. Nor would there be time to store the contents of the working memory at the stoppage time concerning the real time operating system and robot control programs in a mass memory. If Grob were modified as proposed in the final Office Action, rather, the robot movement would stop *immediately*, as would be appropriate in an emergency. The modification of Grob proposed in the final Office Action thus renders Grob unsatisfactory for its intended purpose of stopping the robot movement in a clearly defined manner and storing the contents of the working memory at the stoppage time in a mass memory, and is therefore prohibited by M.P.E.P. § 2143.01.

Finally, M.P.E.P. § 2143.01 prohibits any proposed modification of a reference that changes the principle of operation of a reference. Grob describes the principle of operation at column 1, lines 59-64 to be:

> The termination or controlled breaking off of the robot movement, etc. here means that the working process as such is not brought to an end and instead the working process is broken off, the movement as such is ended and the robot is stopped, but in a controlled manner, so that there is no danger or damage.

Here, Grob defines *clearly* the termination or controlled breaking off of the robot movement as *not* bringing the working process to an end abruptly. If Grob were modified as proposed in the final Office Action, rather, the robot movement would stop *immediately*, as would be appropriate in an emergency, rather than ending the movement and stopping the robot in a *controlled* manner, so that there is no danger or damage. The modification of Grob proposed in the final Office Action thus changes the principle of operation of Grob, and is therefore prohibited by M.P.E.P. § 2143.01. Claim 1 is submitted to be allowable. Withdrawal of the rejection of claim 1 is earnestly solicited.

Claims 2, 3 7, 8, 9, 10, and 11 depend from claim 1 and add additional distinguishing elements. Claims 2, 3 7, 8, 9, 10, and 11 are thus also submitted to be allowable. Withdrawal of the rejection of claims 2, 3 7, 8, 9, 10, and 11 is earnestly solicited.

Rejection of claims 4, 5, 6, 12, 13, and 14:

Claim 4 recites, in pertinent part:

> At least one of the receiving means place said robot in an emergency-stop state when receiving communications data expressing an emergency stop command.

Neither Grob nor Nakai teach, disclose, or suggest "at least one of the receiving means place said robot in an emergency-stop state when receiving communications data expressing an emergency stop command," as discussed above with respect to the rejection of claim 1. Furthermore, persons of ordinary skill in the art who read Grob at the time the invention was made would not have modified Grob as proposed in the final Office Action, as also discussed above with respect to the rejection of claim 1. Claim 4 is thus submitted to be allowable, for at least those reasons given above with respect to claim 1. Withdrawal of the rejection of claim 4 is earnestly solicited.

Claims 5, 6, 12, 13, and 14 depend from claim 4 and add additional distinguishing elements. Claims 5, 6, 12, 13, and 14 are thus also submitted to be allowable. Withdrawal of the rejection of claims 5, 6, 12, 13, and 14 is earnestly solicited.

Conclusion:

Accordingly, in view of the reasons given above, it is submitted that all of claims 1-14 are allowable over the cited references. Allowance of all claims 1-14 and of this entire application is therefore respectfully requested.

If there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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